Snohomish County
Public Works

Aaron Reardon
County Executive

3000 Rockefeller Ave., M/S 607
Everett, WA 98201 – 4046

(425) 388-3488
FAX (425) 388-6449

May 11, 2011

Ryan Ike
FEMA Region X
130 228th Street, SW
Bothell, WA 98021-9796

RE: Appeal of Preliminary DFIRMs Snohomish County, WA issued September 29, 2010.

Dear Mr. Ike,

The purpose of this letter is to appeal the preliminary Digital Flood Insurance Rate Maps (DFIRM) issued on September 29, 2010. There are several areas of interest, but the most serious concern is the Startup area. The preliminary DFIRM proposes to increase the base flood elevation in expanded areas around Startup. After considering the current status, concerns of the community, and pending changes in FEMA policy regarding levee analysis, Snohomish County hereby appeals the preliminary DFIRM.

We believe that the newly mapped portions of the Startup area should remain outside the floodplain based on the following and other information:

- The BNSF Railroad (Railroad) provides flood protection and was included in the original Corps of Engineers Flood Control project in the 1960's.
- The hydraulic modeling shows the Railroad to provide ample freeboard.
- The railroad has endured many large floods including the 2006 flood which was almost identical to a 100 year flood, with no flooding in the newly mapped portion of Startup according to area residents.
- The railroad provides intensive on-going maintenance of their embankment, assuring the risk of failure to be very low.

Please find attached a report and additional documentation describing the Startup Flood Control Project in Appendix A. The Corps documentation of the Startup Project will be sent electronically.

In addition, we understand that Craig Fugate, FEMA Federal Administrator, has informed Congress on March 10th that FEMA will be developing new procedures and policies on these types of problems. While we understand that those procedures have not yet been developed, we sincerely trust that those procedures will provide more realistic scenarios to reflect the real world situations such as the effective flood protection provided by the Railroad. Even without the new policies in place, we believe based on

review of the original Corps Project, there is more than ample technical information to continue certifying the flood protection provided by the Startup levee and Railroad Embankment.

Other areas potentially affected by the revised policy on levee analysis include, but are not limited to, the railroad embankment and US2 in the vicinity of Fern Bluff and the Snohomish River levee system including French Slough Flood Control District. We feel that the revised guidance should be considered throughout the County to ensure fair and equitable administration of FEMA policy to all areas affected by levees.

Please find attached in Appendix B comment forms and summaries of comments submitted electronically to Snohomish County during the 90-day review of the preliminary DFIRMs. We have reviewed the comments and have provided our recommendations where appropriate. Additional comments from County staff are included as Appendix C.

We look forward to working with you to produce the most accurate and reliable flood maps possible in a timely manner. Please contact Chris Nelson at 425-388-3464 ext. 4696 if you need further information regarding this matter.

Sincerely,

Steve Thomsen, P.E.
Public Works Director
Snohomish County

Appendix A

Summary Report – Appeal of the Preliminary DFRIM Maps in Startup Washington base on the Corps of Engineers Project: Flood Control Improvement s, Skykomish River – Wallace River, Startup Washington.

Prepared by: Chris Nelson, P.E. and John Engel, P.E

Introduction:

The area of appeal is shown on the attached map, Figure 1.

The Skykomish River – Wallace River Project, Startup, Washington (the Project) was constructed by the Corps of Engineers in 1965. In 1969 the Project was modified to construct a "training levee". The primary Project is a 7,000 foot long levee (the Startup Levee) constructed parallel to the Great Northern Railroad (railroad), now owned by Burlington Northern and Santa Fe Railway Company, tying into the railroad embankment on the upstream and downstream ends. This Project was designed to prevent Skykomish River flooding into the Wallace River and adjacent community of Startup.

This memo summarizes and references reports and data that clearly demonstrate that the Corps of Engineers evaluated the flood protection characteristics of the Great Northern Railroad Embankment, designed and constructed two improvements to the embankment and intended the railroad embankment to be par t of the overall flood protection system including the Startup Levee.

Information is provided in the following areas:

1. Project Design documents including:
    a. Geotechnical evaluation of the railroad embankment
    b. Engineering design drawings that documents the inclusion of the railroad
    c. Expectations for maintenance;
2. Hydraulic modeling completed for the recent FEMA maps that show significant freeboard well above the minimum;
3. BNSF Maintenance practices;
4. County Maintenance practices; and
5. Recent large flood events that show the railroad provided the flood protection expected.

Geotechnical Evaluation of the Railroad Embankment

It is clear from reviewing the Corps of Engineer's design documents (Wallace River at Startup Washington, Detailed Project Report on Flood Control, U.S. Army Engineer District, Seattle Corps of Engineers, 20 May, 1964) that the railroad embankment downstream from the end of the Startup Levee for about 1.5 miles was included in the flood protection system for the Corps' Project. Geotechnical evaluation of the embankment included field sampling of soils in and adjacent to the embankment to assure the embankment would prevent seepage and was stable to withstand a flood. The Detailed Project Report (Page 5, Paragraph 9.e(2)) identified two sections between station 1369 + 00 to station

1374 + 30; and station 1405 + 50 to 1411 + 20 that required some enforcement on the landward side of the levee. These two repair sites were included in the original project construction (See plate 4, Appendix VIII, *Operation and Maintenance Manual, Flood Control Improvements Skykomish River-Wallace River, Startup Washington,* transmitted 25 Nov, 1969).

In a letter dated Nov. 2nd, 1964, Great Northern Railway Company approved the plan referencing the "Report of Effect on Great Northern Railway Embankment of the Flood Control Project for Wallace River Levee at Statrtup Washington, 20 August 1964. The letter goes on to say that they will enter into agreement with the County.

The Detailed Project Report summarizes the investigations of the Corps looking at the geotechnical characteristic of the Railroad embankment. They also looked at the practices of the railroad in rocking or rip rapping the railroad embankment in those locations where it was adjacent to the Skykomish river channel susceptible to erosion. Paragraph 9 of this report – Foundation and Materials Investigations, discusses the testing and evaluation of the RR embankment. The concluding paragraph 9.h indicates that the Corps chose the location of the levee and where it ties into the railroad to avoid problem areas upstream of bridge 440. This paragraph goes on to say:

> "There will be no problem at this tie. The railway embankment downstream of the project will be reinforced at two critical areas shown on plate 6. Existing riprap on the railway embankment downstream of this project precludes the chance of erosion between bridges 441 and 444."

In summary, the Corps evaluated the railroad embankment, made improvements in two locations and included the railroad embankment as part of the flood protection project – effectively considering it a levee.

Hydraulic Modeling and Freeboard

The Detailed Project Report (pg. 5) indicates that "The levee top elevation was established at the bottom of the railroad ballast and is in agreement with the desires of officials of the great Northern Railway. It is estimated that the recommended levee will protect against a flood having a frequency of 50 years (120,000 cfs) with a 3-foot freeboard." In 2007 the Startup Levee portion of the Project was evaluated by the Corps and found to meet the design, construction, maintenance and freeboard requirements for protection against the base flood. In a letter dated January 23, 2007, the Corps recommended that the "Flood Insurance Rate Maps should be updated to reflect the 100-year level of protection provided by this levee." The hydraulic analysis conducted for the Upper Skykomish River Flood Insurance Study (the Study) found that the minimum freeboard for the levee was 3.32 feet. This meets the minimum three foot freeboard requirement to maintain certification.

Comparison of the railroad grade elevation extracted from the topographic data used for the Study indicates that approximately 5 to 9 feet of freeboard exists along the railroad between the Startup Levee and Wallace River. Freeboard calculations (Table 1) and a profile plot (Figure 2) are attached.

BNSF Maintenance Practices

Discussions with BNSF indicate that the Railroad provides significant inspection and maintenance of their embankment at least equal to what would be required for assuring the embankment provides the continued flood protection provided by the Corps Project. The Railroad maintains the embankment according to standards set by the Federal Railway Administration.

DETAILS PENDING FROM BNSF

County Maintenance of the Startup Levee

Snohomish County staff inspects and maintains the Startup levee annually. In the past, the annual Corps inspections have resulted in a Minimally Acceptable rating for the system, with suggestions to reduce unwanted vegetation along the levee. In 2010, HDR/Jones & Stokes Joint Venture, under contract to the Seattle District Corps of Engineers, prepared a Periodic Inspection Report for the Startup Levee System – Primary, October 2010. The Levee was found to have no safety issues but had system deficiencies consisting of unwanted vegetation and encroachments.

In 2007, at the request of the County and FEMA, during the development of the Upper Skykomish FIS Mapping project, the Corps inspected the Startup Levee and recertified the levee to be included in the FEMA National Flood Insurance Program. (Letter to Dave Lucas, 1/23/2007)**Recent Flood History**

The ten largest floods recorded on the Skykomish River at the USGS Gold Bar gage are listed in Table 2:

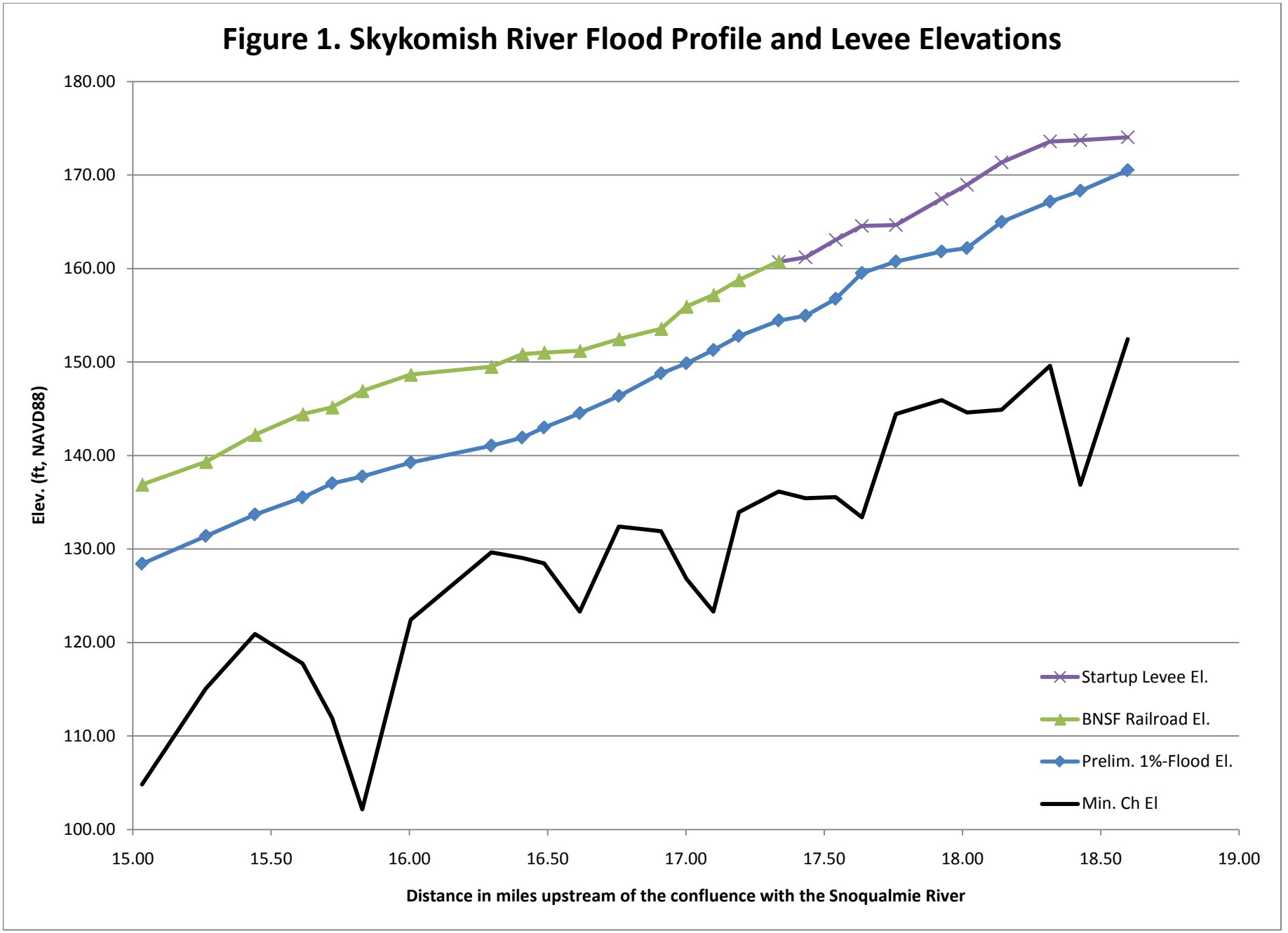
	Date	Stage (ft)	Peak Flow (cfs)
1	11/6/2006	24.51	129,000
2	11/24/1990	22.49	102,000
3	12/26/1980	21.34	90,100
4	12/21/1933	21.28	88,700
5	10/20/2003	20.73	86,500
6	2/26/1932	20.70	83,300
7	11/29/1995	20.24	80400
8	11/23/1959	20.20	78800
9	11/23/1986	19.90	76500
10	12/3/1975	19.85	76600

Seven of these events have occurred since construction of the Startup Levee in 1965. Two of the highest flows at this location occurred within the last twenty years: 102,000 cfs recorded on November 24, 1990, and 129,000 cfs recorded on November 6, 2006. According to area residents, no inundation or damage has occurred in Startup for the above mentioned floods.

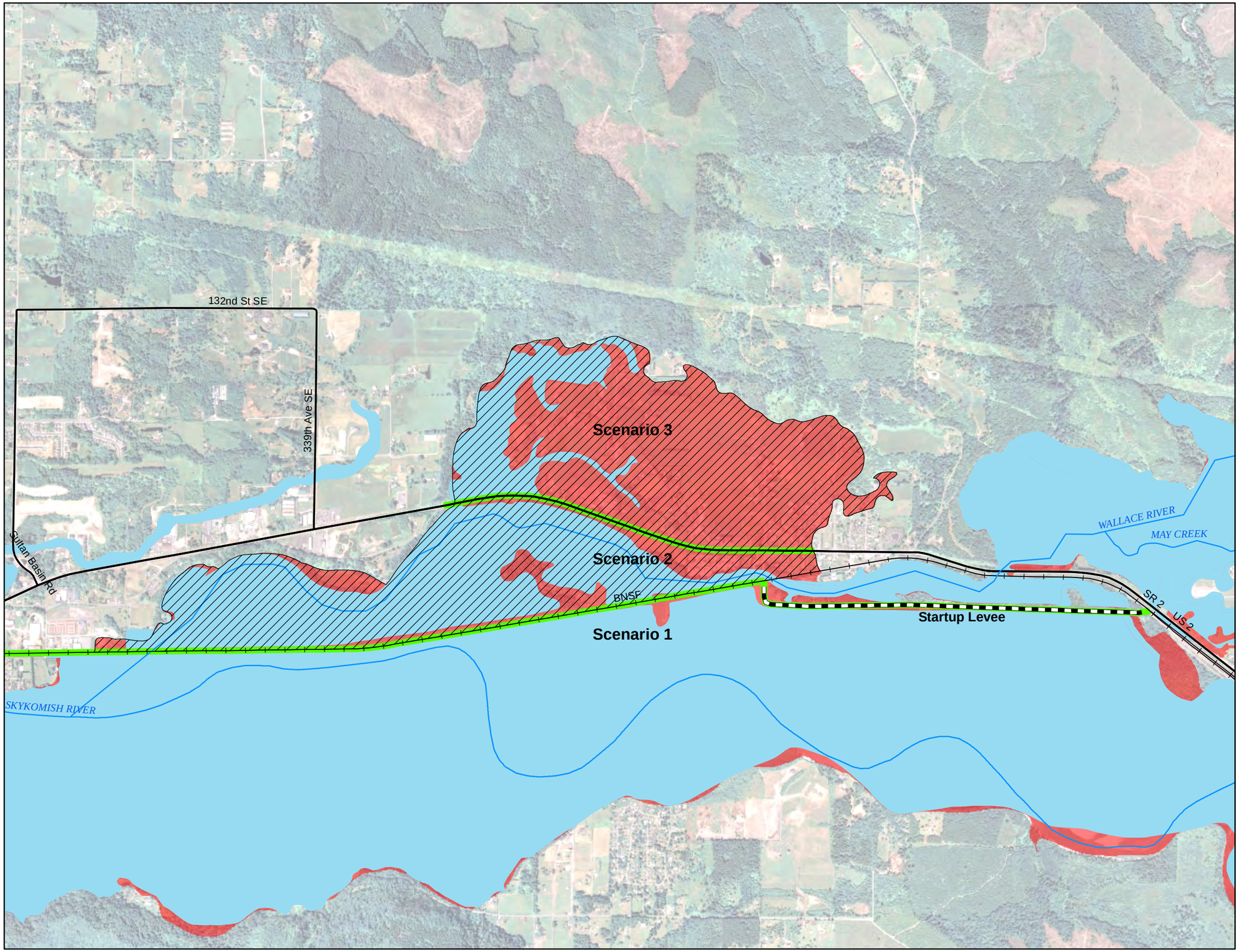
Conclusions

Based on a review of the Corps project, we believe there is clear documentation that shows the Railroad Embankment and Startup Levee was intended to act as a coordinated flood protection system – in effect the Railroad provided the same benefit that a certified levee. The additional information provided here on hydraulic modeling, freeboard, historical flood events and maintenance practices, all support the continued certification of the Startup Project. Additional supporting documentation is provided electronically. We look forward to continued discussions with FEMA as you consider this request. Additional information will be provided as it becomes available. We also recommend including the Corps of Engineers in your review since they were the agency that constructed the Startup Project and have certified the levee for many years.

Figure 1. Skykomish River Flood Profile and Levee Elevations



2010 Preliminary DFIRM Public Notifications



Legend

- Appeal Area
- Rivers
- Major Roads
- Railroads
- Startup Levee
- Zone Break
- Effective Special Flood Hazard Area
- Preliminary Special Flood Hazard Area

N
W E
S

0 500 1,000 2,000
Feet

Snohomish County

PUBLIC WORKS
SURFACE WATER MANAGEMENT
(425) 388-3464

Table 1. Freeboard calculations for Startup Levee and BNSF Railroad

Location	Cross Section Letter[1]	River Mile[2] (mi)	River Station[3] (ft)	Profile Station[4] (ft)	1% Chnc Flood Elev.[5] (ft, NAVD88)	Railroad Grade Elev.[6] (ft, NAVD88)	Startup Levee Elev.[7] (ft, NAVD88)	Freeboard (ft)
Begin Startup Levee	CX	18.60	55,310	98,194	170.50		174.03	3.53
	CW	18.43	54,408	97,292	168.31		173.72	5.41
	CV	18.32	53,829	96,713	167.15		173.59	6.44
	CU	18.14	52,904	95,788	164.98		171.35	6.37
	CT	18.02	52,243	95,127	162.17		168.95	6.78
	CS	17.92	51,757	94,641	161.81		167.46	5.65
	CR	17.76	50,884	93,768	160.74		164.66	3.92
	CQ	17.64	50,235	93,119	159.51		164.55	5.04
	CP	17.54	49,735	92,619	156.75		163.06	6.31
	CO	17.43	49,159	92,043	154.95		161.20	6.25
End Startup Levee	CN	17.34	48,648	91,532	154.43	160.76	160.70	6.27
	CM	17.19	47,886	90,770	152.77	158.77		6.00
	CL	17.10	47,401	90,285	151.27	157.17		5.90
	CK	17.00	46,886	89,770	149.85	155.93		6.08
	CJ	16.91	46,402	89,286	148.78	153.56		4.78
	CI	16.76	45,597	88,481	146.36	152.46		6.10
	CH	16.62	44,851	87,735	144.51	151.20		6.69
	CG	16.49	44,168	87,052	142.98	151.02		8.04
	CF	16.41	43,751	86,635	141.90	150.84		8.94
	CE	16.30	43,159	86,043	141.05	149.50		8.45
	CD	16.00	41,621	84,505	139.24	148.65		9.41
	CC	15.83	40,697	83,581	137.75	146.91		9.16
	CB	15.72	40,122	83,006	137.02	145.15		8.13
	CA	15.61	39,558	82,442	135.50	144.42		8.92
	BZ	15.44	38,646	81,530	133.68	142.22		8.54
	BY	15.26	37,710	80,594	131.38	139.32		7.94
Confl. w/ Wallace R.	BX	15.03	36,491	79,375	128.41	136.89		8.48

Notes:

1. Cross Section Letters as noted on preliminary DFIRM dated 9-29-2010
2. River Mile measured in miles upstream of the confluence with the Snoqualmie River.
3. River Station from HEC-RAS model developed for Upper Skykomish River Flood Insurance Study.
4. Profile Station as noted on preliminary FIS profile dated 9-29-2010.
5. Skykomish River 1%-Annual Chance Water Surface Elevation as noted in Floodway Data Table in preliminary FIS dated 9-29-2010.
6. Railroad Grade Elevation from LiDAR digital elevation model (2003).
7. Startup Levee Elevation surveyed by Snohomish County Public Works (2007).

Appendix B

2010-10-28

Paul T. Ferguson, 21959 Oak Way, Brier, Washington 98036

"Your assistance in suspending this review process until a proper impact study is completed and communicated to effected property owners is requested.

If this makes no change to the value of my property or my insurance costs, I am fine with the revision, however, knowing the multiple "unintended consequences of the hand of Government" I am suspicious. This is coupled with my firsthand experience with the topography of this neighborhood. The proposed maps indicate 100 year flood areas which include the highpoints of the neighborhood, yet exclude others which are at lower elevation yet bordering the flood plane. As such, I can not support reckless changes that have no regard for the negative impact upon property owners.

Further specific information must be provided to all effected property owners before these changes are released as public record and potentially harm values and increase insurance costs. Holding two public meetings in remote locations is unsatisfactory. It is no wonder public trust of government is at an all time low!"

MAP ATTACHED: Figure 1. Ferguson.

RECOMMENDATION: Revise Zone A for Scriber Creek as part of a future map update.

2010-10-28

Mark Wolken

"Over the last couple of days I have become aware of some of the detail included in the revised FEMA flood maps for the Snohomish River. City of Everett staff alerted me to significant inconsistencies between elevations on properties in Everett as shown on LIDAR (and in many cases as confirmed through flood elevation certificates) and the flood elevations identified on the maps. These are not minor errors affecting a few acres here and there, but are applicable to literally hundreds of industrial properties in the City…**"**

RESPONSE: Produced maps of affected areas, referred to City of Everett.

11-3-2010

Phil & Peggy James, 30302 Hillis Rd., Arlington, WA 98223

Commenter wrote letter asking how logging affects Stillaguamish river flooding? Also would like to see breakdown of activities that harm the environment ie. 1. Clear cutting, 2. Comm.. fishing, 3. Nets on the river, 4. Fish poaching, 5. Chemical poisions, 6. Development, 7. Road construction, 8. Dumping garbage.

RESPONSE: None to date.

11-3-2010

Anonymous

"This is very poor planning. There was no help to explain to me if my home is in the new floodplain. I watited in line for 30 min then left."

RESPONSE: No response possible.

11-9-2010

James Hammeren, 7128 Sexton Rd, Snohomish, WA 98290, 425-387-5943

"My house floods so often I don't even make damage claims each time. Once a year on average. My house should not have been built. The elevation certificate is wrong. My house is 5 feet lower than what it says. The builder falsified the document so the house could be built. No one believes me. I need help. What are my options?"

MAP ATTACHED: Figure 2. Hammeren

NOTE: David Wilson has discussed potential mitigation options with Mr. Hammeren. As a post-FIRM home the property is not high on FEMA's list for mitigation assistance.

11-9-2010

Roger Finley, 32319 Mann Rd.

"FEMA spend time & money in projects preventing floods, dams & dredging. Save taxpayers money. Good for everybody!"

RESPONSE: No response requested.

11-9-2010

Lowell Lorenz, 1647 Lake Mount Dr., Snohomish, WA 98290

"I live on the shore of Blackmans Lake. People who've lived there for 30 years said the homes have never been close to being flooded. The water does go past the dock sometimes. The houses are 10+ feet above the lake."

RESPONSE: No response requested.

11-15-2010

John Beucherie, 41107 Dorman Rd, Gold Bar, Wa 98251. 425-870-1048 beucherie@msn.com

Mr. Beucherie requested review of the proposed flood hazard for his property on the Skykomish River. Upon review it was found that the smoothing process used to generate the flood hazard area boundary resulted in his property being included in the floodplain inadvertently.

MAP ATTACHED: Figure 3. Beucherie.

RECOMMENDATION: Revise Zone AH boundary. Proposed Zone AH boundary attached: ZoneAO_editt.shp

11-15-2010

Dan Nelson, Owner, Nelson Business Park, LLC., 7116 220th St. SW, Mountlake Terrace, WA 98043

Mr. Nelson advised of potential discrepancy in map for Edmonds area in a letter (Figure 4).

MAP ATTACHED: Figure 5. Nelson.

RECOMMENDATION: Revise A zone boundary, proposed Zone A boundary attached: HallCr_zone_a_rev.shp

11-21-2010

City of Everett

"… In our 2005 FIRMs the area lying west of the fifteen-foot contour south of Ravenna Street in the Lowell neighborhood (along Larimer Road), is designated "Rural Flood Fringe District". This designation should be reflected on the DFIRM panels 53061C1030G, 53061C1040G, and 53061C1045G…"

RESPONSE: Worked with City of Everett to coordinate necessary changes with FEMA/STARR.

12-6-2010

Pat Ryan, Owner, North Creek Self Storage, 1627 208th St. SE Bothell, WA 98012.

"I noticed that according to the flood map on line, link provided below, that part of my complex, the office building with the address of 1609 208th St. SE Bothell, is located inside the flood zone. I believe this is incorrect. The map was clearly made on old data because SR 524 is shown as a 2 lane road with the old 2 lane bridge inplace. SR 524 was widened including the bridge over North Creek approximately 3 years ago. The new bridge was made with a much greater flow capacity than the old one as per the flood study done by Snohomish County in conjuntion with the City of Bothell and the State of Washington… For these reasons FEMA's and the county's flood map needs to be revised in this area as my property is not impacted by the flood zone as shown."

MAP ATTACHED: Figure 6. Ryan.

RESPONSE: WSDOT report retrieved & reviewed, comment appears valid, update Zone A boundary to reflect 128' contour immediately upstream of new bridge, proposed Zone A boundary attached: NorthCr_zone_a_rev.shp

12-27-2010

Keith Poindexter, 4231 204th ST NE, Arlington.

"…2 houses, my barn, and my outbuildings are all within the 53'+ elevation range, and I believe this is properly defined on the current county maps as well (the 52' is actually properly defined though for the BFE). The 52' elevation is some distance from my house, and since 1896 flood water have not moved beyond this boundary. 1990 was our worst flooding that my grandmother recalled, and she had been there since the late teens/early twenties. 2008 was definitely close, but the water did not rise as high on the driveway or towards the outbuildings (from the north - you can see a natural channel there)."

MAP ATTACHED: Figure 7. Poindexter.

RECOMMENDATION: Area above BFE is ~12 acres. This meets the criteria for showing an island in the Revise Zone AE boundary, proposed area of exclusion shown in following file: aoi_out.shp

1-1-2011

Scott Lange, 14025 363rd Ave SE, Startup

Concerned with revisions that show portions of Startup in new flood hazard area. Appeal to be filed by Mr. Lange on behalf of Startup residents.

RESPONSE: Held additional meeting in Startup, responded to info requests, contacted BNSF regarding certification of railroad. Upon further review, we agree that the original Corps Startup project warrants the Railroad grade as certified flood protection.

2-10-2011

Tom Bahr, 829 S. Machias Rd, Snohomish, WA 98290

Requested revision of flood hazard area to show footprint of house that is elevated above the Base Flood elevation as an island in the flood hazard area. Proponent provided survey data to support claim.

RESPONSE: Area is too small to meet FEMA's requirements for an 'island' in the flood hazard area.

2-11-2011

Romeo Gonyea, 17150 Tye St. SE, Monroe, WA 98272

Requested revision of flood hazard area to show more accurate boundary for French Slough flooding based on surveyed 35' contour. Proponent provided survey data to support claim.

RESPONSE: Claim appears valid, referred to City of Monroe.

4-4-2011

French Slough Flood Control District submitted letter directly to FEMA requesting clarification of appeal period applicability to FSFCD and stay of appeal period based on Fugate letter.

RESPONSE: No response requested.

To: Snohomish County Public Works/Surface Water Management
3 Nov 2010 meeting

We appreciate the opportunity to come to the "public review" sponsored by Snohomish County Public Works/ Surface Water Management. Your letter to us as "flood risk" property and your article in the Nov 2, 2010 Herald made us aware of the continuing problem property located near rivers and creeks that may flood during a particularly rainy season.

I think it's important to continue to write articles for the Herald and other major media outlets frequently so the public can become more aware of environment issues that affect this beautiful Snohomish county with its farmlands, rivers, lakes and mountains. Using the many media outlets such as newspapers, television, internet and radio are all important communication tools.

We want everyone to be aware how to keep our lands and water healthy and to be reminded frequently about it. It seems that we get great coverage when areas get flooded, roads are washed out, the fishing diminishes or a dam breaks. Then, information output slows down.

In the Herald article, the mapping consultants used topography, weather and hydrologic date not available 20 years ago. I would assume that included in the research was major logging or clear cutting, housing developments that increase surface water run off, and other issues that affect the flooding other than weather.

For instance, if a company or private party clear-cuts 100 acres in the Stillaguamish water shed, how do we factor that into increased water flowing into the river for next big rainy season? If some major clear cut takes place, or a housing development is built can the public be informed in simple language how that might affect river flooding?

Is it possible to see a breakdown of the activities by percentage of what harms the specific areas of the environment? For example: 1. Clear cutting 2. Commercial fishing 3. Nets on the river 4. Fish pouching 5. Poisons from chemicals 6. Commericial and private buildings 7. Paved roads 8. Dumping garbage.

We realize this "keeping the environment" healthy is complicated. But keeping us, the public, frequently informed and aware can leads to better practices.

Phil James
Peggy James
30302 HillisRd.
Arlington, Wa. 98223 360 435 2547

Flood Risk Open House
Property Owner Information & Map Comments

Property Owner/Renter

1. Name _____
2. Street Address _____
3. In what year was the structure built? _____
4. Do you have a mortgage? _____
5. Do you have flood insurance? _____

Property Location Identification Table

6. Building Location
   a. Name of Community _____ Initial FIRM Date _____
   b. Current Effective FIRM : Flood Zone _____ Base Flood Elevation (BFE) _____
   c. New Preliminary DFIRM: Flood Zone _____ Base Flood Elevation (BFE) _____

Flood Insurance Table

7. Flood Insurance Comments

Preliminary Flood Insurance Rate Maps

8. Technical Comments with Supportive Data

~~TOTAL PANIC!~~ THIS IS VERY POOR PLANNING. THERE WAS NO HELP TO EXPLAIN TO ME IF MY HOME IS IN THE NEW FLOODPLAIN. I WAITED IN LINE FOR 30 MIN. THEN LEFT.

Submit comments to your community. Your community will bundle all the comments received and forward them the FEMA Region 10 Support Center.

Flood Risk Open House
Property Owner Information & Map Comments

Property Owner/Renter

1. Name James Hammerer
2. Street Address 7128 Seton Rd Snohomish Wa 98290
3. In what year was the structure built? 1994
4. Do you have a mortgage? Yes/No
5. Do you have flood insurance? Yes/No
6. Has your house been substantially improved or damaged since built? Yes/No; if yes, when: 2/96, Floods → 12/99, 11/96, 1/97, 11/06, 11/08, 1/09

Property Location Identification Table (elevations in NAVD 88)

7. Building Location
   a. Name of Community None — Initial FIRM Date
   b. Current Effective FIRM : Flood Zone ? — Base Flood Elevation (BFE) ?
   c. New Preliminary DFIRM: Flood Zone ? — Base Flood Elevation (BFE) ?

Flood Insurance Table

8. Flood Insurance Comments

My house Floods so often I don't even make insurance Claims each time. Once a year on average My house should not have been built the elevation certificate is wrong. My house is 5 feet lower than what it says the builder falsified the document so the house could be built. No one believes me I need help what are my options 425-387-5973

Preliminary Flood Insurance Rate Maps

9. Technical Comments with Supportive Data

Submit comments to your community. Your community will bundle all the comments received and forward them to the FEMA Region 10 Support Center.

Flood Risk Open House
Property Owner Information & Map Comments

Property Owner/Renter

1. Name Roger Fowler
2. Street Address 32319 Mean Rd
3. In what year was the structure built? 37 Prior house burned
4. Do you have a mortgage? ~~Yes~~/No
5. Do you have flood insurance? Yes/No
6. Has your house been substantially improved or damaged since built? Yes/No; if yes, when: 68 ?

Property Location Identification Table (elevations in NAVD 88)

7. Building Location
   a. Name of Community ______ Initial FIRM Date ______
   b. Current Effective FIRM : Flood Zone ______ Base Flood Elevation (BFE) 173
   c. New Preliminary DFIRM: Flood Zone ______ Base Flood Elevation (BFE) ______

Flood Insurance Table

8. Flood Insurance Comments FEMA - Spend Time + Money in projects preventing Floods. Dams + Dredging Save Taxpayers Money. a Good Son Everybody!

Preliminary Flood Insurance Rate Maps

9. Technical Comments with Supportive Data

Submit comments to your community. Your community will bundle all the comments received and forward them to the FEMA Region 10 Support Center.

Flood Risk Open House
Property Owner Information & Map Comments

Property Owner/Renter

1. Name Lowell Lorenz
2. Street Address 1647 Lake Mount Dr Snohomish WA 98290
3. In what year was the structure built? Est 1988
4. Do you have a mortgage? (Yes)/No
5. Do you have flood insurance? Yes/(No)
6. Has your house been substantially improved or damaged since built? Yes/No; if yes, when:

Property Location Identification Table (elevations in NAVD 88)

7. Building Location
   a. Name of Community City of Snohomish Initial FIRM Date
   b. Current Effective FIRM : Flood Zone Base Flood Elevation (BFE)
   c. New Preliminary DFIRM: Flood Zone Base Flood Elevation (BFE)

Flood Insurance Table

8. Flood Insurance Comments

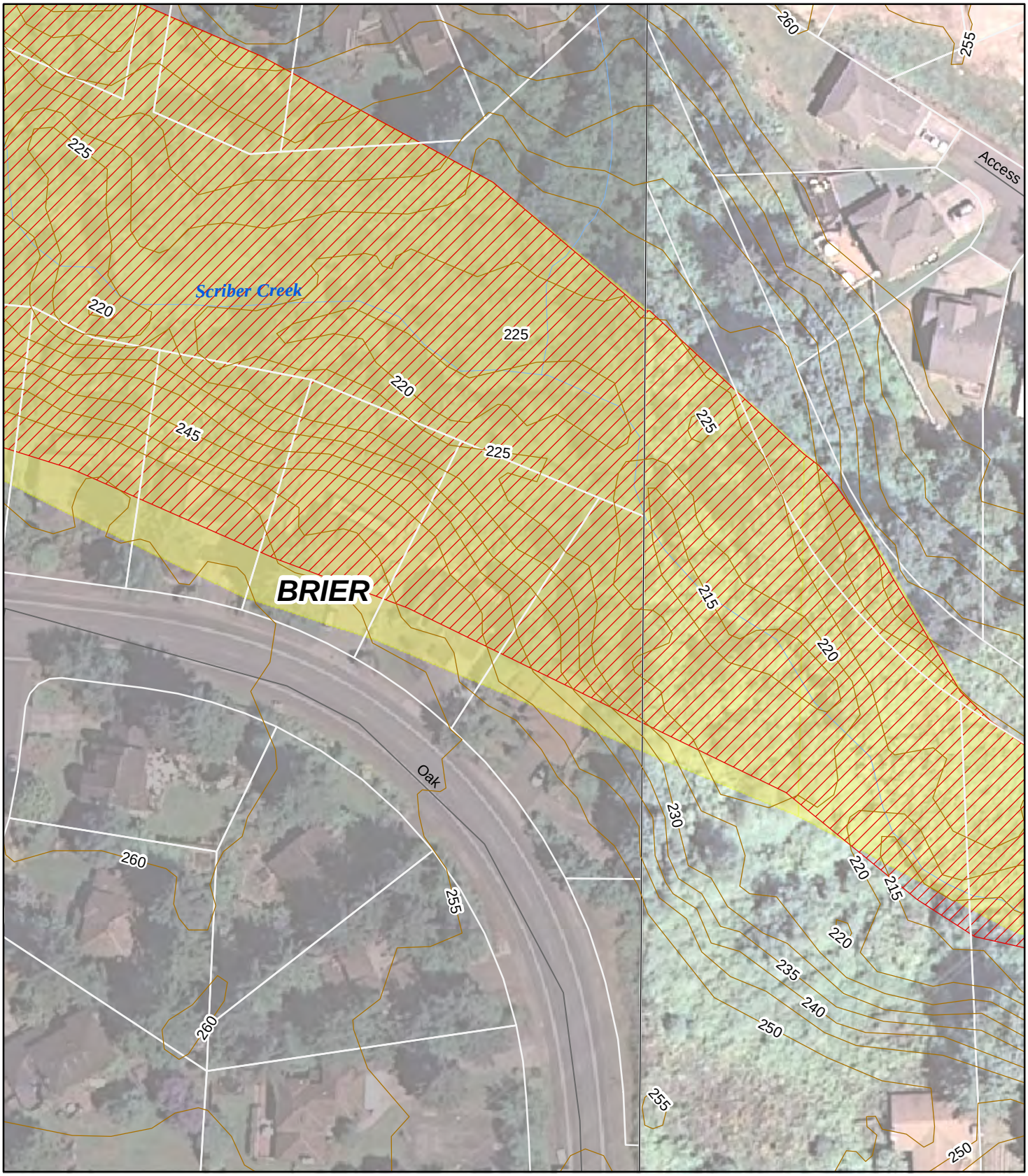
I live on the shore of Blackmans Lake, People who've lived there for 30 years said the homes have never been close to being flooded. The water does go past the dock sometimes.

The houses are 10+ feet above the lake.

Preliminary Flood Insurance Rate Maps

9. Technical Comments with Supportive Data

Submit comments to your community. Your community will bundle all the comments received and forward them to the FEMA Region 10 Support Center.



Legend

- Preliminary 100-yr Flood Hazard Area
- Effective 100-yr Flood Hazard Area
- Waterbodies
- City Boundaries
- County Boundary
- Major Roads

FEMA Flood Hazard Areas
Snohomish County, WA
Figure 1. Ferguson

0 50 100
Feet

Snohomish County
PUBLIC WORKS
SURFACE WATER MANAGEMENT
(425) 388-3464

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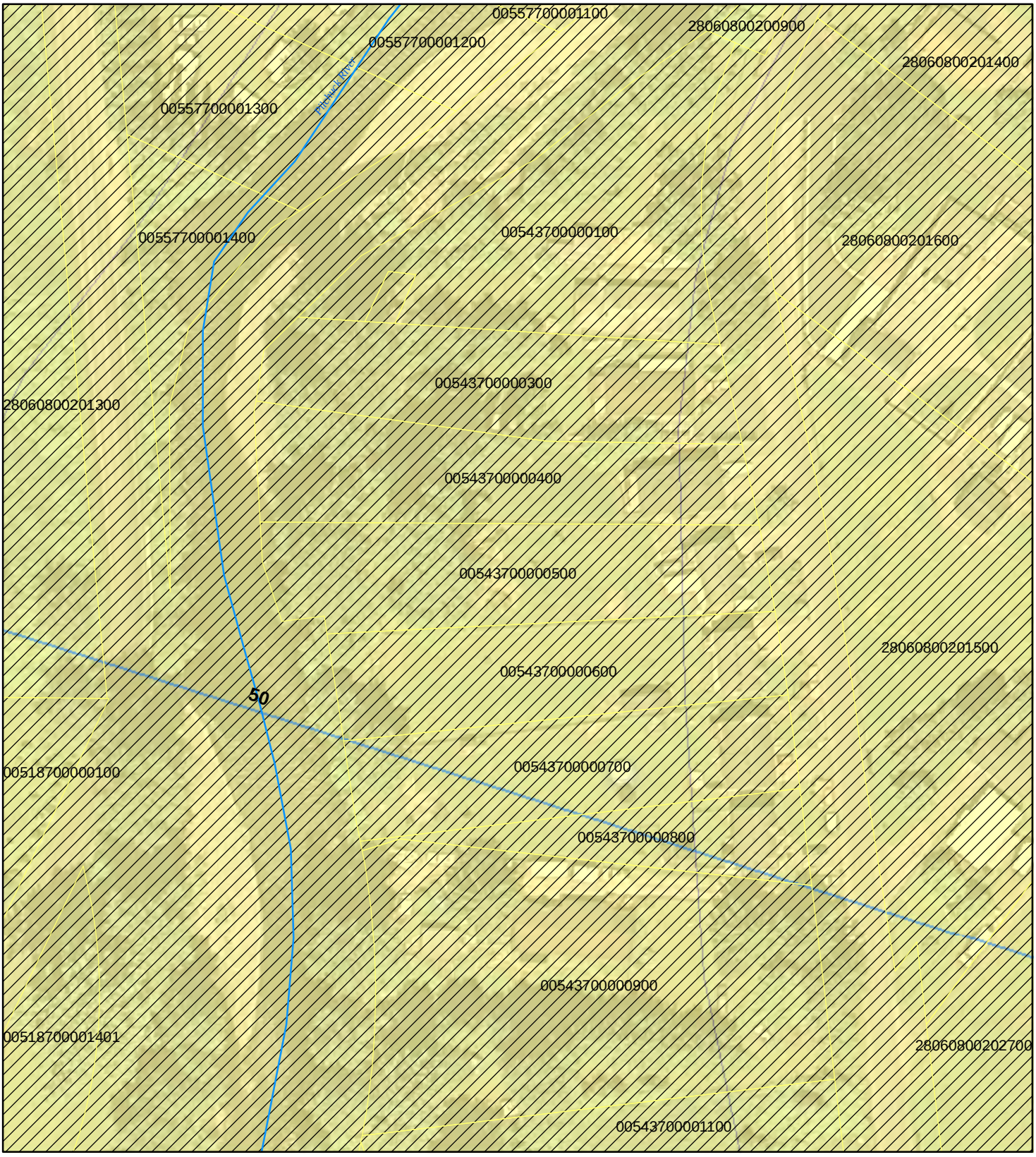

FEMA Flood Hazard Data
Figure 2. Hammeren

Legend

- Streams
- Base Flood Elevation (ft, NAVD88)
- Parcels
- Effective Zone AE
- Preliminary Zone AE

N
W E
S

0 50 100
Feet

Snohomish County

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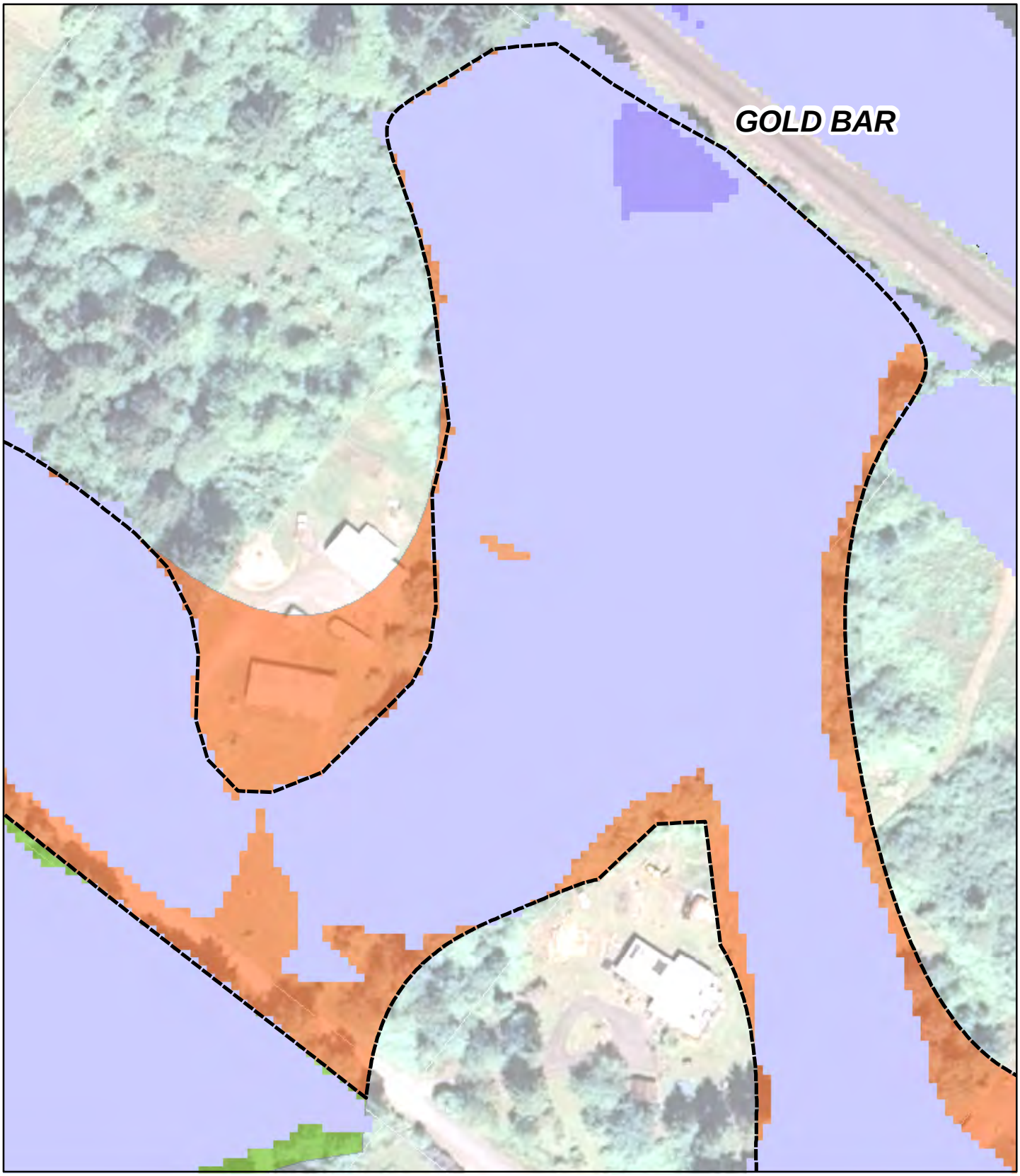

Legend

Proposed Zone AO — Base Flood Elevation (ft, NAVD88)

Depth of flooding (ft)	Preliminary Flood Zone
1 - 5	AE
5.1 - 10	AO
10.1 - 15	
15.1 - 20	
20.1 - 25	
25.1 - 30	

FEMA Flood Hazard Areas
Snohomish County, WA
Fig. 3 Beucherie

0 50 100
Feet

Snohomish County
PUBLIC WORKS
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NELSON BUSINESS PARK LLC

Chris,

I' am sorry I was not able to attend the meeting in Monroe Thursday. Enclosed are photos and maps of discussed flood area discrepancy. The photo was taken during the last flood in 2007 December. The photo was taken facing north east toward entry. The map enclosed shows where the actual flood waters go. I don't have any mortgage issues. I just want to make sure you get it right. Call or email with questions. 206 718 0611

Thanks,

Dan Nelson

7116 220TH St SW
Mountlake Terrace, WA
98043

PHONE (425) 775 2944
E-MAIL nelsonbp1973@hotmail.com

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where Base Flood Elevations (BFEs) and/or floodways have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The projection used in the preparation of this map was Washington State Plane north zone (FIPSZONE 4201). The horizontal datum was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, MD 20910-3282

To obtain current elevation, description, and/or location information for bench marks shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at http://www.ngs.noaa.gov/.

Base map information shown on this panel was provided by the U.S. Geological Survey and Snohomish County. Digital Orthophoto Quadrangles were produced at a scale of 1:12,000 from photography dated 1989 or later. Snohomish County orthophotos were produced at a one foot pixel resolution and dated 2001 or later.

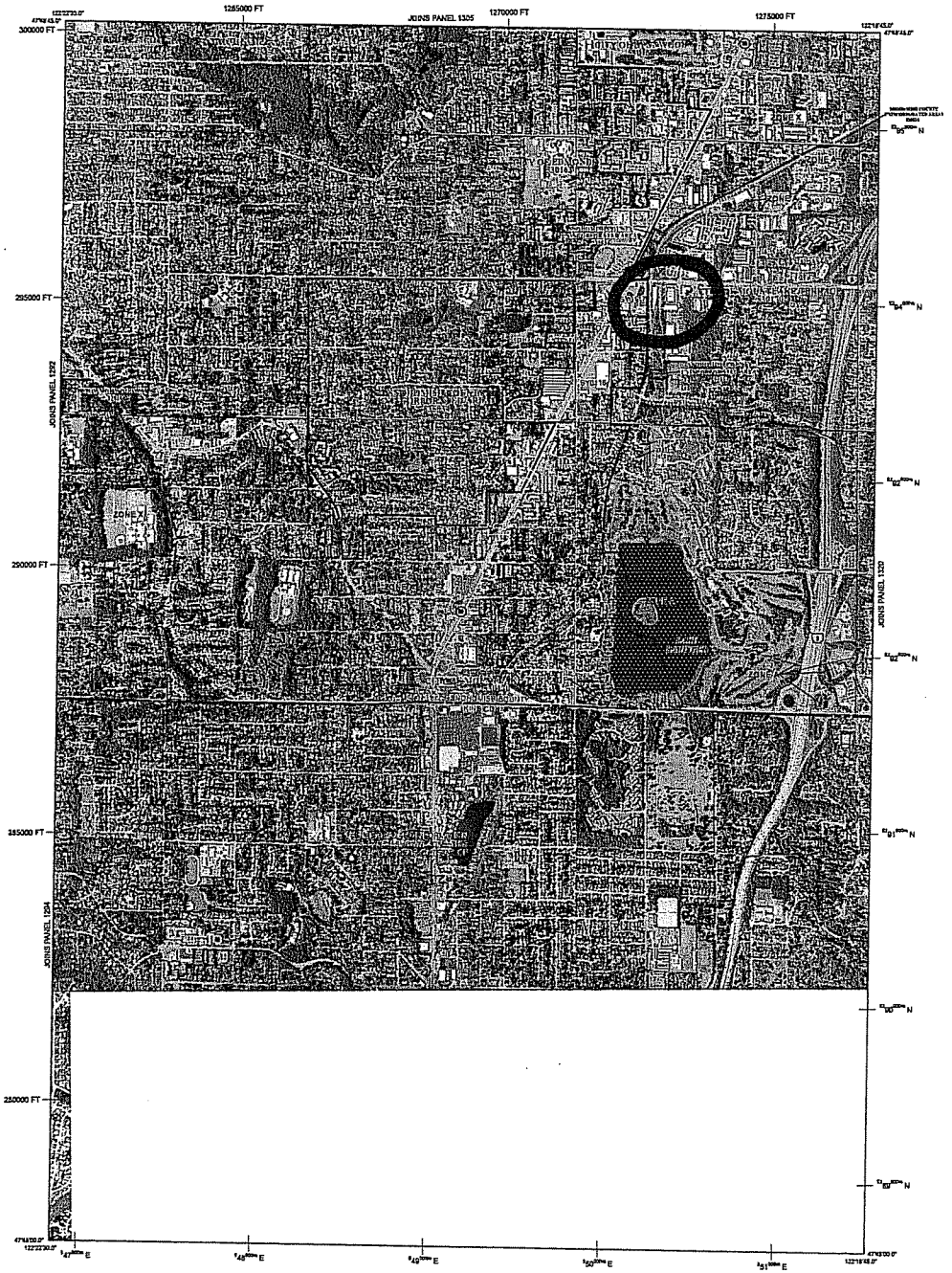
This map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed Map Index for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the FEMA Map Service Center at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov.

If you have questions about this map or questions concerning the National Flood Insurance Program in general, please call 1-877-FEMA MAP (1-877-336-2627) or visit the FEMA website at http://www.fema.gov.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- ZONE A — No Base Flood Elevations determined.
- ZONE AE — Base Flood Elevations determined.
- ZONE AH — Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR — Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE A99 — Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE V — Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE — Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

- ZONE X — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

- ZONE X — Areas determined to be outside the 0.2% annual chance floodplain.
- ZONE D — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

- A — A — Cross section line
- B — B — Transect line
- 97°07'30", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
- 4927000mN — 1000-meter Universal Transverse Mercator grid ticks, zone 10
- 5000000 FT — 5000-foot grid ticks: Washington State Plane coordinate system, north zone (FIPSZONE 4601), Lambert Conformal Conic
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
November 6, 1999
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
For additional flood hazard information, to effect updated topographic information, and to update corporate limits.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'
500 0 1000 2000 FEET
150 0 300 600 METERS

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1315G

FIRM
FLOOD INSURANCE RATE MAP
SNOHOMISH COUNTY, WASHINGTON
AND INCORPORATED AREAS

PANEL 1315 OF 1575
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

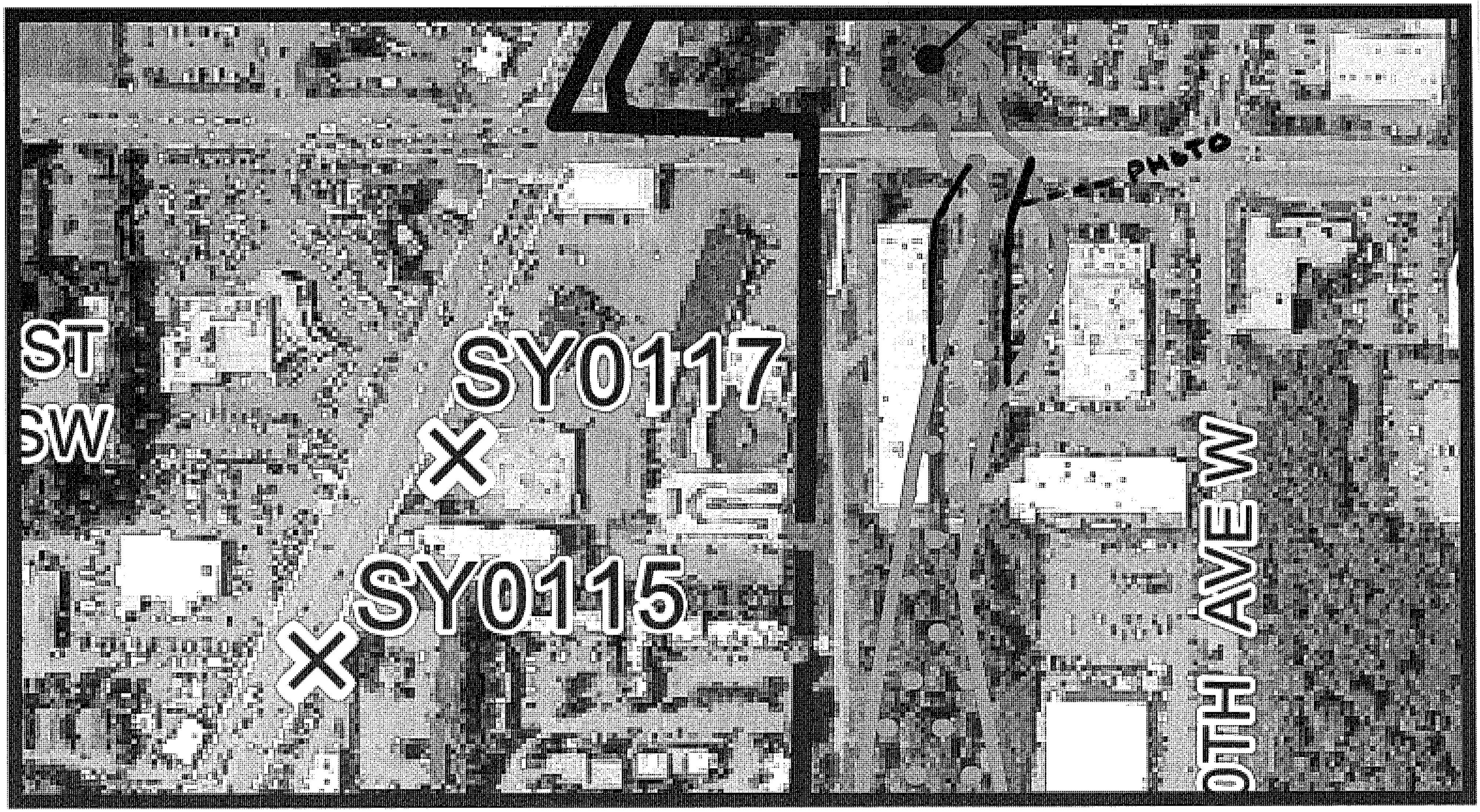
CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SNOHOMISH COUNTY	530given	1315	G
EDMONDS, CITY OF	530142	1315	G
LYNNWOOD, CITY OF	530167	1315	G
MOUNTLAKE TERRACE, CITY OF	530179	1315	G
WOODWAY, TOWN OF	530506	1315	G

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
53061C1315G
MAP REVISED
PRELIMINARY

Federal Emergency Management Agency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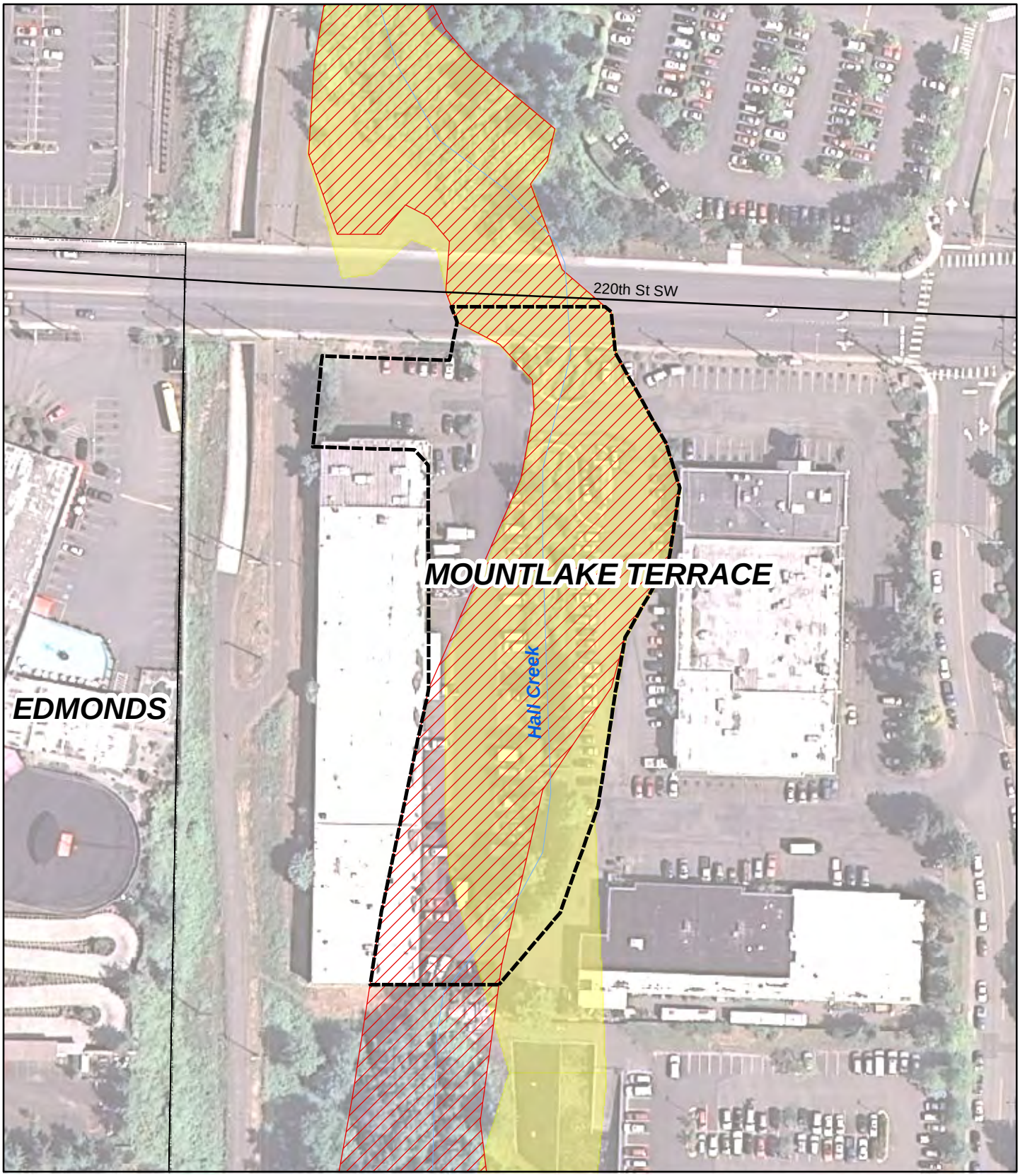
ST
SW
0TH AVE W
PHOTO


NELSON
BUSINESS
PARK
FASTENAL
HIGH
WATER



Legend

- A_zone_rev
- **Preliminary Flood Hazard Area**
- **Effective Flood Hazard Area**
- **City Boundaries**
- **Major Roads**

FEMA Flood Hazard Areas
Snohomish County, WA
Fig. 5 Nelson

0 50 100
Feet

Snohomish County
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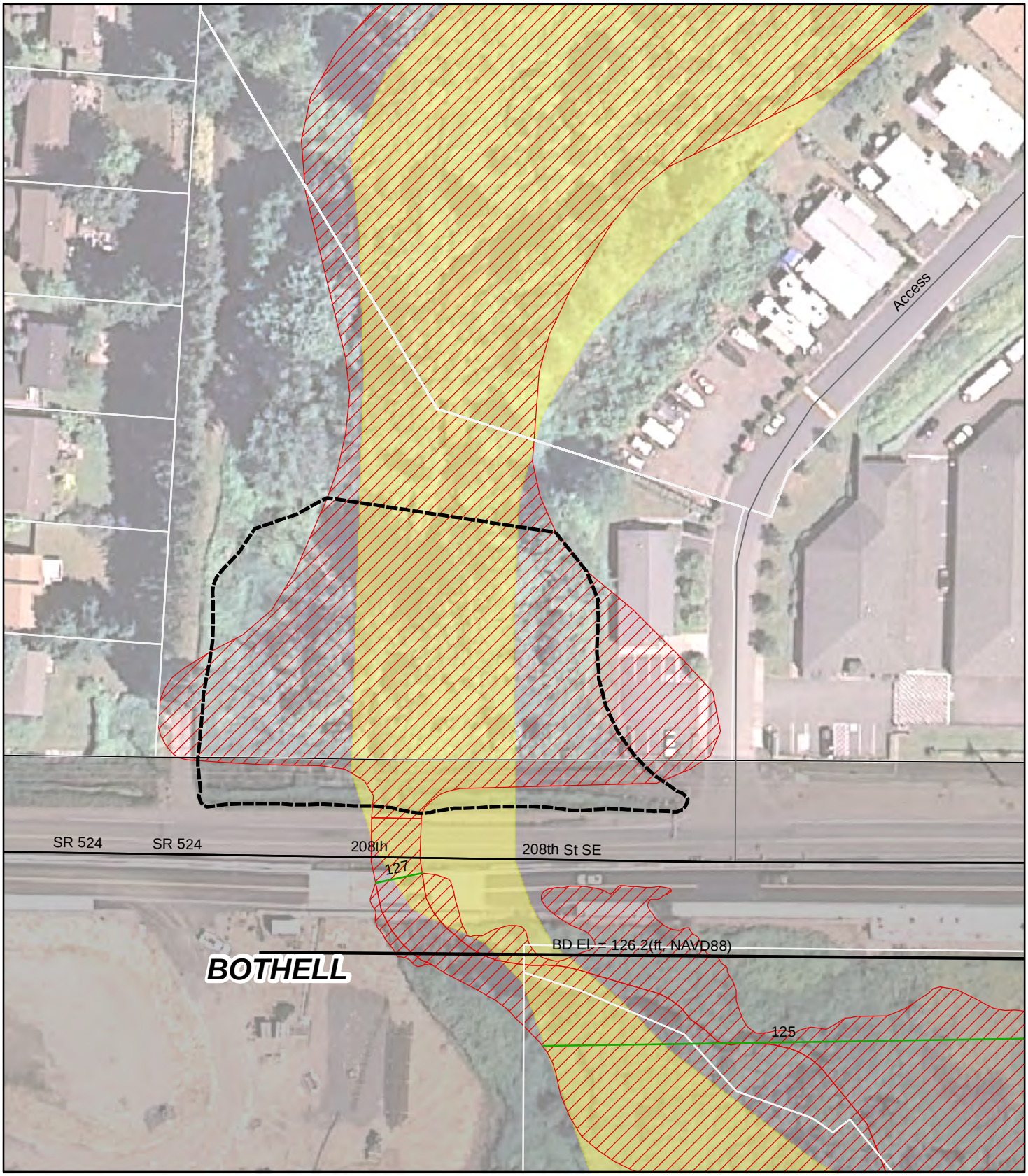

Legend NorthCr_zone_a_edit
Preliminary 100-yr Flood Hazard Area
Effective 100-yr Flood Hazard Area
Waterbodies
City Boundaries
County Boundary
Major Roads

FEMA Flood Hazard Areas
Snohomish County, WA
Fig. 6 Ryan

0 50 100
Feet

Snohomish County
PUBLIC WORKS
SURFACE WATER MANAGEMENT
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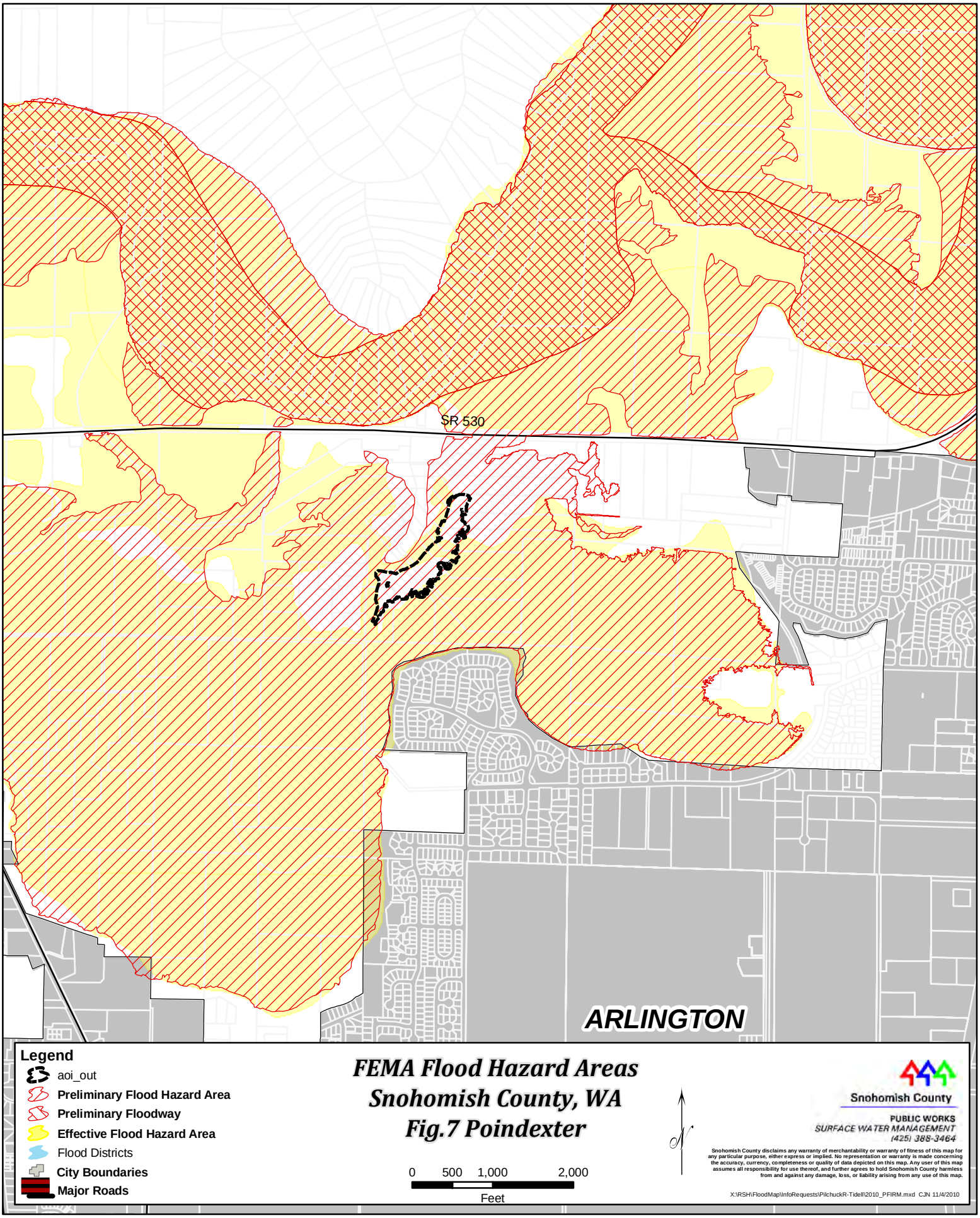

Legend

- aoi_out
- **Preliminary Flood Hazard Area**
- **Preliminary Floodway**
- **Effective Flood Hazard Area**
- Flood Districts
- **City Boundaries**
- **Major Roads**

FEMA Flood Hazard Areas
Snohomish County, WA
Fig.7 Poindexter

0 500 1,000 2,000

Feet

Snohomish County

PUBLIC WORKS
SURFACE WATER MANAGEMENT
(425) 388-3464

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Appendix C

Snohomish County comments regarding the revised preliminary DFIRM published 9-29-2010:

The following A Zones were omitted and need to be shown on the final DFIRM:

- Poplar Creek, tributary to Scriber Creek in Lynnwood / south Snohomish County
- Wagleys Creek, tributary to Skykomish River upstream of Sultan (Note: the Snohomish County watercourse layer diverges from mapped flood hazard area in several places indicating that revised mapping is needed for this flooding source)
- Armstrong Creek, tributary to Stillaguamish River north of Arlington

The following notes apply to specific panels listed below:

Panel	Revision
708	• Quilceda Creek is incorrectly labeled Quilceda River in two places. • The label for Allen Creek flooding is missing in the SE corner of the panel.
710	• Limit of Detail Study (LODS) line for Ebey Slough flooding is missing where Marine Drive crosses Quilceda Creek.
738	• Remove thin black line inside SFHA that appears to demarcate Lake Stevens shoreline – could be mistaken as Zone D boundary from legend.
739	• Remove thin black line inside SFHA that appears to demarcate Lake Stevens shoreline - could be mistaken as Zone D boundary from legend.

AE Zones that need to be revised:

- Area on North Fork Stilly identified where mapping needs to be extended across the highway:

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Profile plots that need to be revised:

- P104 for SF Stillaguamish River, cross section label BH repeated.